In the specification:

Please amend paragraph 6 as follows:

Many attempts have been made to develop new concepts of light emitting structures or detectors which can be incorporated in silicon technology. For example, infrared detectors basing on germanium on Si wafers have been investigated, see for example L. Colace et al., Appl. Phys. Lett. 76, 1231 (2000). Moreover, porous silicon has been analyzed (A.G. Cullis et al., J. Appl. Phys. 83, 909 (1997)). In addition, Si-Ge quantum well structures have been investigated (H. Presting et al., Appl. Phys. Lett. 69, 2376 (1996)), as well as quantum dot structures of SiGe (P. Schittenhelm, "Selbstorganisation und Selbstordnung in Si/SiGe-Heterostrukturen", in "Selected Topics of Semiconductor Physics", Eds: G. Abstreiter, M. Stutzmann, P. Vogl, TU München 1997, ISBN 3-932749-02-2). Moreover, carbon doped SiGe has been investigated, see T. Brunhes et al., Appl. Phys. Lett. 77, 1822 (2000) and K. Eberl et al., Thin Solid Films 294, 98 (1997). Furthermore, doping of silicon with centers for luminescence, for instance doping with erbium (~~S. Coffa et al., MRS Bulletin 23(4), 25 (1998)~~ Y.Q. Wang et al., Appl. Phys. Lett. 83, 347 (2003)), and silicon nanocrystals have been investigated.

Please amend paragraph 7 as follows:

However, for reasons such as low efficiency and operation only at low temperatures, none of the above mentioned systems has yet lead to a commercial product. It is only low dimensional semiconductor structures, in particular quantum dots (QD), which have attracted increasing interest from the point of view of fundamental physics and device application. For example, the strained SiGe/Si system has been subject of numerous investigations (O.G. Schmidt and K. Eberl, Phys. Rev. B61, 13721 (2000) an M. Goryll et al., ~~thin~~ Thin Solid Films ~~226~~ 336, 244 (1998)). Optical properties of Ge islands have been widely studied and the complex transition and recombination phenomena in multi-layer structures have been analyzed. Photoluminescence of Si/Ge islands is generally obtained at low temperatures. Recently, some papers reported on room temperature photoluminescence originating from Si/Ge quantum dot structures (H. Sunamura et al., J. Cryst. Growth 157, 265 (1995) and O.G. Schmidt et al., Appl. Phys. Lett. 77, 2509 (2000)). However, no detailed investigations on the optical properties were presented.

Please amend paragraph 52 as follows:

Fig. 6 illustrates the lateral distribution of Ge islands 20 formed by Stranski-Krastanov growth. The Ge islands 20 are ~~randomly~~ substantially regularly spaced apart ~~distributed~~ and the lateral density of the spaced apart Ge islands 20 is in the range of 10^{10} to 10^{11} cm^{-2}.

Please amend paragraph 84 as follows:

Fig. 16 shows a procedure of creating Ge islands 20 having a defined lateral arrangement in the active zone 14. Instead of ~~randomly~~ creating Ge islands 20 due to inherent stress in the first Ge layer 16 grown on the Si buffer layer 12, defined regions 54 of germanium are formed by first subjecting the Si layer 12 to electron photolithography to leave Si areas exposed on which germanium can be epitaxially deposited, e.g. by MBE. Then a first Si spacer layer 18 is grown on the Si buffer layer 12 thereby covering the defined regions 54 of germanium. The Ge regions 54 act as growth seeds for Ge islands 20 in the Ge layers 16 that are subsequently grown on the Si spacer layers 18 and there subsequently grown Ge layers include Ge islands in a Ge wetting layer.